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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/424,660	01/27/1999	WOLFGANG BECKER	PM265122	8310

909 7590 03/18/2003

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EXAMINER
BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
1762	30

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/424,660	Applicant(s) BECKER ET AL.
	Examiner Katherine A. Bareford	Art Unit 1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14,18-20,24,25 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers Claims 1-13, 15-17, 21-23 and 26 are canceled.

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Feb. 19, 2003 has been entered.

As a result of the filing of the RCE submission, the amendment filed on Jan. 16, 2003 and the amendment filed with the RCE submission on Feb. 19, 2003 have both been entered and considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 14, 20, 24 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 706 178 A2 (hereafter '178) in view of Japan 05-002777 (hereinafter '777).

'178 teaches a method and apparatus for applying a layer of viscous fluid onto a substrate. Column 11, line 40 through column 12, line 20 and figures 3A-3C. The viscous fluid (resin

bonding material) is provided to a dosing arm (nozzle) positioned over the substrate. Column 11, line 40 through column 12, line 20 and figures 3A-3C. A layer is formed on the substrate by dosing the substrate with fluid from the dosing arm. Column 11, line 40 through column 12, line 20 and figures 3A-3C. The substrate is rotated with a rotary drive. Column 11, lines 40-45 and figures 3A-3C. The amount of fluid and rotation of the substrate is controlled. Column 11, lines 40-55. The fluid is a bonding material for bonding a second substrate to the first substrate. Column 11, lines 40-55. The second substrate is positioned over the layer of viscous fluid formed on the first substrate. Column 11, line 40 through column 12, line 20 and figures 3A-3C. Then the connected substrates are spun together to spin off excess fluid. Column 11, line 40 through column 12, line 20 and figures 3A-3C.

Claim 20: the process makes optical storage disks. Column 5, lines 40-50.

Claim 24: the apparatus for applying the layer includes a dosing arm and a rotary drive that rotates the substrate. Column 11, lines 40-45 and figure 3A. A means to connect the first and second substrates is provided. Column 11, line 40 through column 12, line 20 and figures 3A-3C. A means to rotate the connected substrates is provided. Column 11, line 40 through column 12, line 20 and figures 3A-3C.

'178 teaches all the features of these claims except the controller system for controlling the thickness of the viscous fluid on the substrate, the pump, and the plate for holding the substrate.

However, '777 teaches a method and apparatus for applying a layer of a viscous fluid onto a planar substrate. Abstract and figure. The viscous fluid (resist) is provided to a dosing arm (see

nozzle 4) positioned over a substrate. Abstract and figure. A layer is formed on the substrate by dosing the substrate with fluid from the dosing arm. Abstract and figure. The substrate is rotated by a rotary drive (i.e. the computer controlled rotating for the coater system would be provide by a drive mechanism of some sort). Abstract and figure. A thickness of the layer formed on the substrate is controlled by controlling the rotary speed of the rotary drive at a speed based in response to the temperature of the substrate (measured by sensor 7) and the temperature of the viscous fluid (measured by sensor 6). Abstract and figure and paragraph [0007] of Detailed Description translation. The apparatus for applying the fluid includes a dosing arm (nozzle 4) and a plate that supports the substrate (see the area marked 2 on the figure). Abstract and figure. A computer controller is provided that controls a thickness of the layer formed on the substrate by controlling the rotary speed of the rotary drive at a speed based in response to the temperature of the substrate (measured by sensor 7) and the temperature of the viscous fluid (measured by sensor 6). Abstract and figure and paragraph [0007] of Detailed Description translation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '178 to use the control system of '777 to control the thickness of the layer on the first substrate with an expectation of desirably even coating results, because both references teach spin coating of a substrate with '178 teaching a desirable range of amounts of coating and rotation speeds of the substrate to be used for providing a bonding coating and '777 teaches that when spin coating it is desirable to monitor coating conditions, including substrate and fluid temperatures, and to use these monitored conditions to provide an optimum coating thickness by controlling the rotational speed of the substrate. It further would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify '178 in view of '777 to provide a dosing pump to supply the fluid to the dosing arm with an expectation of desirable coating results, because '178 in view of '777 teach that fluid is supplied to a dosing arm during the process, and it is the Examiner's position that a dosing pump is a conventional method for supplying fluid to a dosing arm in the art of spin coating wafers. . It further would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '178 to provide a plate to hold the substrate as suggested by '777 with an expectation of desirable coating results, because '178 teaches spin coating where fluid is provided to a substrate to be spun and '777 teaches that when spin coating where a fluid is provided to a substrate to be spun, it is known to provide a flat/plate like area to hold the substrate to be spun.

4. Claims 18-19, 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over '178 in view of '777 as applied to claims 14, 20, 24 and 27-28 above, and further in view of EP 595 749 A2 (hereinafter '749).

'178 in view of '777 teaches all the features of these claims except monitoring the thickness of the layer and adjusting deviations of the thickness.

However, '749 teaches that when applying liquid resist to a wafer from a spray nozzle to form a thin film on the top surface of the wafer, it is conventionally known that the resist thickness resulting from the spin coating operation is dependent on the viscosity of the resin and the spin speed. Page 2, line 55 through page 3, line 15. '749 further teaches to monitor the

thickness of applied liquid during the application and spinning process, so as to adjust to the desired thickness in situ. See page 3, lines 15-40.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '178 in view of '777 to provide in situ measurement of coating thickness as suggested by '749 with an expectation of better thickness control, because '178 in view of '777 teaches applying coating to a substrate to be spun with control of thickness and '749 teaches controlling thickness using in situ measurement of coating thickness during a spin coating operation to help control the final coating results. It further would have been a matter of routine experimentation to select desired tolerances/deviations in the coating thickness (including the depth), so that it would be known when to make changes based on the measurements.

Response to Arguments

5. Applicant's arguments with respect to claims 14, 18-20, 24, 25 and 27-29 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner notes applicants arguments of Jan. 16, 2003 and Feb. 19, 2003. However, the newly cited reference to Japan 05-002777 has been cited as to the known adjustment of rotary speed based on measurements of both fluid and substrate temperatures.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP ~~1100~~ 1700